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TITLE: Production of ceria-based oxygen ionic conductors doped with gd2o3

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PATENT-FAMILY:

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APPLICATION-DATA:

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INT-CL (IPC): C01F017/00

ABSTRACTED-PUB-NO: KR2004077081A

BASIC-ABSTRACT:

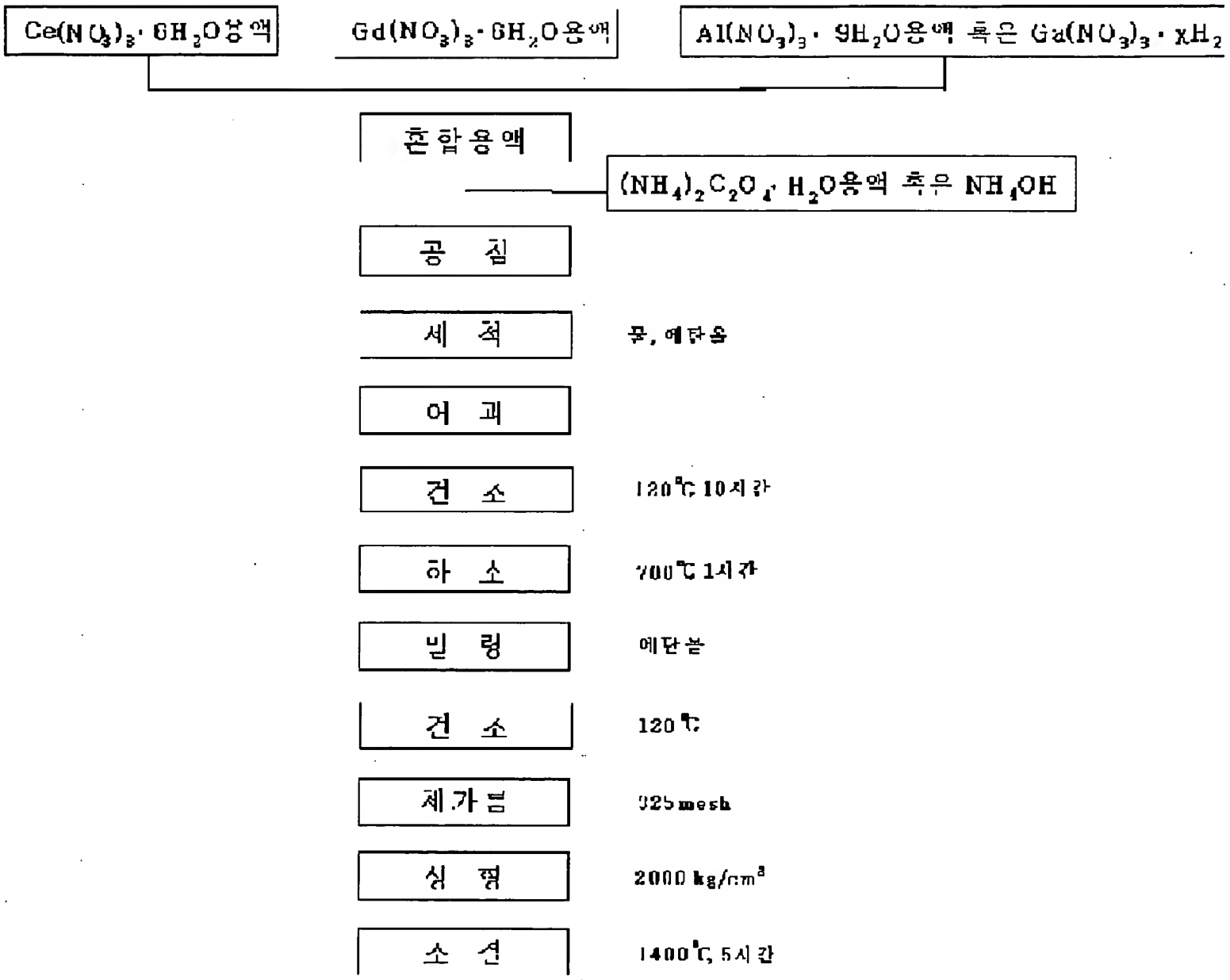
NOVELTY - A production method of Al2O3(or Ga2O3)-Gd2O3-CeO2 powder for CeO2-based oxygen ionic conductors doped with Gd2O3, is provided to form fine particles and lower sintering temperature by co-precipitating oxygen ionic conducting materials and sintering aid materials.

DETAILED DESCRIPTION - The CeO2-based oxygen ionic conductors doped with Gd2O3 are produced by the following steps of: (i) dissolving cerium nitrate, gadolinium nitrate, and aluminum nitrate in water, wherein the raw materials are measured in the proportions corresponding to (Ce0.8Gd0.2O1.9)1-x(Al2O3)x (x=0.01-0.05); (ii) forming coprecipitates by adding (NH4)2C2O4xxH2O and NH4OH solution to the mixed solution until the pH of the solution is 10; (iii) washing coprecipitates with water and ethanol; (iv) drying at 120deg.C and calcining at 700deg.C for 1hr; (v) sieving dried powder to be less than 325mesh in size and pressing under pressure of 2000kg/cm2; (vi) sintering pressed compacts at 1400deg.C for 5hrs.

CHOSEN-DRAWING: Dwg.1/10

DERWENT-CLASS: E33 L02 L03

CPI-CODES: E34-C03; E34-E; E35-F; L02-A04; L02-G07E; L03-A02C;


$Ce(NO_3)_3 \cdot 6H_2O$용액
$Gd(NO_3)_3 \cdot 6H_2O$용액
$Al(NO_3)_3 \cdot 9H_2O$용액 혹은 $Ga(NO_3)_3 \cdot xH_2$
혼합용액
$(NH_4)_2C_2O_4 \cdot H_2O$용액 혹은 NH_4OH
공 침
세 척
물, 에탄올
어 괴
건 소
120℃, 10시간
하 소
700℃ 1시간
밀 링
에탄올
건 소
120℃
체가름
325mesh
성 형
2000 kg/cm²
소 결
1400℃, 5시간